

Art Unit 2511

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Paper No. 19

Appeal No. 92-3748

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ON BRIEF

**PAT.&T.M. OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES**

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte Ole K. Nilssen

Application for Patent filed September 10, 1990, Serial No. 07/579,569; which is a continuation-in-part of application Serial No. 06/787,692, filed October 15, 1985; which is a continuation of application Serial No. 06/644,155, filed August 27, 1984, now abandoned; which is a continuation of application Serial No. 06/555,426, filed November 23, 1983, now abandoned; which is a continuation of application Serial No. 06/178,107, filed August 14, 1980, now abandoned. Electronic Ballast Cathode Heating Circuit.

Ole K. Nilssen, pro se.

Supervisory Patent Examiner - Eugene R. LaRoche
Examiner - Son Dinh

Before Hairston, Krass and Cardillo, Administrative Patent
Judges.

Cardillo, Administrative Patent Judge.

This is a decision by Examiners-in-Chief¹ designated in accordance with 35 U.S.C. § 7 on the appeal taken under 35 U.S.C. § 134 from the final rejection of claims 1 to 12 and 19 to 27. Subsequent to appeal, appellant added new claims 28 and 29² which stand rejected in the Supplemental Examiner's Answer mailed December 20, 1993 (Paper No. 17). The examiner, in this supplemental answer, also withdrew any rejection applied as to claims 2 to 7 and indicated that they would be allowable if certain formal matters were met. This leaves claims 1, 8 to 12 and 19 to 29 for our consideration since claims 13 to 18 have been cancelled.

The appealed claims are directed to various arrangements having sources or DC driven inverters with terminals across which are connected a series-combination of an inductor (L) and capacitor (C) which are naturally resonant at a frequency lower than the fundamental frequency of the AC voltage provided to

¹In accordance with the notice in 1156 OG 32, Nov. 9, 1993, the Examiners-in-Chief have been directed to use the title Administrative Patent Judge.

²In the amendment filed May 14, 1993 (Paper No. 16) which also included an amended version of claims 1, 11 and 19 which have replaced the versions of these claims in the appendix attached to appellant's opening brief.

them.³ This LC circuit is further connected with output terminals across which appear a substantially sinusoidal AC voltage which is applied to a gas discharge lamp having cathodes connected to auxiliary windings associated with the inductor as illustrated with regard to Figures 8 to 10 of the specification. We reproduce the most recently amended version⁴ of claim 1 as being illustrative as follows:

1. An arrangement comprising:

a source providing an alternating voltage across a pair of source terminals; the alternating voltage having a fundamental frequency;

a series-combination of an inductor and a capacitor; the series-combination being: i) naturally resonant at a frequency lower than said fundamental frequency, (ii) effectively connected across the source terminals, thereby to draw a source current from the source terminals, and (iii) connected in circuit with a pair of output terminals across which is provided a substantially sinusoidal output voltage; the inductor means [sic] being coupled with an auxiliary winding, thereby to cause an auxiliary voltage to be provided from this auxiliary winding; and

a gas discharge lamp means having a first thermionic cathode with a pair of cathode terminals connected with the auxiliary winding by way of a connect means; the lamp means also having a second thermionic cathode; the substantially sinusoidal output voltage being applied between the first and the second thermionic cathodes.

³The portion of the specification said to support this recitation (page 7 of the specification as set forth on page 4 of the opening brief) actually recites that the "inversion frequency [of the inverter transistor]... to be equal [sic, equal] to or higher than the natural resonance frequency of the inductor and capacitor combination."

⁴See footnote 2.

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The references of record relied upon by the examiner are:

Cox	3,691,450	Sep. 12, 1972
Pitel	4,045,711	Aug. 30, 1977
Nilssen	4,463,285	Jul. 31, 1984
		(filed Mar. 8, 1982)

The references relied upon by the Board⁵ are:

Elms	3,733,541	May 15, 1973
Walker	4,071,812	Jan. 31, 1978

REJECTIONS

Claims 1, 8 to 12 and 19 to 27 stand rejected under 35 U.S.C. § 103 as set forth on pages 3-4 of the Supplemental Examiner's Answer (Paper No. 17). As evidence of obviousness, the examiner offers Pitel considered with Cox.

Claims 28 and 29 stand rejected under 35 U.S.C. § 103 based upon a new ground of rejection, likewise set forth in Paper No. 17 (pages 4-5). As evidence of obviousness the examiner again offers Pitel and Cox with the addition of Nilssen.

Rather than repeat the arguments of appellant and the examiner, we make reference to Paper Nos. 16 to 18 for the relevant details thereof that apply to the above noted grounds of rejection before us. In this regard, we note that the opening answer (Paper No. 11, at page 2) withdrew all grounds of

⁵We attach copies of these references to this decision as well as a PTO-892 with appropriate citation data.

rejection that had been presented in the final rejection mailed October 21, 1991 (Paper No. 6) and that the first reply brief (Paper No. 12, filed June 15, 1992) has been denied entry (Paper No. 13, mailed August 25, 1992). While the supplemental reply brief (Paper No. 18, filed January 18, 1994) argues only the new ground of rejection as to claims 28 and 29, the examiner has apparently accepted the arguments in the remarks of the amendment filed May 14, 1993 (Paper No. 16) as to the patentability of claims 1, 8 to 12 and 19 to 27 in lieu of their presentation in this supplemental reply brief (see 37 CFR § 1.192(c)(6)(iv)). Since this application has already been subjected to prosecution delays associated with our first remand (Paper No. 14, mailed February 22, 1993) and since appellant is acting pro se, we will likewise accept these remarks of Paper No. 16 in lieu of such 37 CFR § 192(c)(6)(iv) § 103 arguments.

OPINION

After a careful review of the record before us, we find that the evidence adduced by the examiner is sufficient to support the § 103 rejection of claims 1, 8 to 12 and 19 to 27. Since, however, the use of Nilssen as part of the basis for rejecting claims 28 and 29 has been, in part, challenged because this reference does not qualify as being "prior art," we will reverse

that § 103 rejection and substitute a new ground of rejection as to these claims pursuant to 37 CFR § 1.196(b).

Turning first to the § 103 rejection of claims 1, 8 to 12 and 19 to 27, it appears from the remarks of Paper No. 16 that appellant does not fully appreciate the concept taught by Cox at column 5, lines 31-35 or that the concern relative to determining § 103 obviousness relates to combining reference teachings and not physical substitution of parts from one reference into another. As stated by the precedent of our reviewing tribunal, "the proper inquiry should not be limited to the specific structure shown by the references, but should be into the concepts fairly contained therein, and the overriding question to be determined is whether those concepts would suggest to one skilled in the art the modification called for by the claims." In re Bascom, 230 F.2d 612, 109 USPQ 98, 100 (CCPA 1956). Thus, it has been further stated by this court that:

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. In re Wood, 599 F.2d 1032, 202 USPQ 171 (CCPA 1979); In re Passal, 426 F.2d 828, 165 USPQ 720 (CCPA 1970); In re Richman, 424 F.2d 1388, 165 USPQ 509 (CCPA 1970); In re Rosselet, 347 F.2d 847, 146 USPQ 183 (CCPA 1965).

In re Keller, 642 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). See also In re Nievelt, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973) ("Combining the *teachings* of references does not involve an ability to combine their specific structures").

Therefore, the concern relative to § 103 is what the artisan would have gleaned from the collective teachings and suggestions of the references taken with the basic knowledge in the art and not that the attempt to combine the physical structure of Cox with that of Pitel might produce negative as well as positive results, as appellant suggests it should be. In fact, even if there would be some drawbacks to modifying Pitel's existing LC circuit so as to resonate at a frequency lower than the fundamental frequency of the inverter, this alone does not demonstrate such a modification would not have been obvious to the artisan in a § 103 sense. Whenever a circuit is modified to achieve one purpose there is almost invariably an attendant cost, either in terms of money, complexity, efficiency, etc. Such is the nature of making engineering tradeoffs to achieve one or even several goals. Such tradeoffs, even if they exist, hardly demonstrate that the proposed modification would not have been obvious to the artisan to achieve some desired result applicable to one set of circumstances. In our view, there is no requirement that the modification proposed by the examiner will have absolutely no detrimental effects since such effects may

well be inconsequential when measured against the advantage or effect being sought. Instead, all that is ever required is that the artisan would have expected the proposed modification to be reasonably likely to achieve the desired effect. See In re O'Farrell, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988) ("For obviousness under § 103, all that is required is a reasonable expectation of success").

In any event, the claimed resonant frequency being chosen to be lower than the inverter fundamental frequency is not disclosed to provide any benefit, to be in any way critical or to solve any problem not solved if the resonant frequency is chosen to be equal to the fundamental frequency, as it is in Pitel. Thus, the selection of a resonant frequency lower than the inverter fundamental frequency appears to be little more than a matter of choice within the skill of the artisan. See In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975). Besides the Cox teaching that the LC resonant frequency need not be set to be exactly the same as that of the inverter oscillator, we note the Walker discussion of inverter operation at frequencies above and below LC tank resonant frequency at column 3, lines 46-60. Clearly, nothing but well known expected results arise from departing from the exact resonant frequency-inverter frequency match noted by Pitel. Such well known expected benefits are evidence of obviousness. See In re Skoner, 517 F.2d 947, 186 USPQ 80 (CCPA 1975).

While we, thus, can find no merit in appellant's position as to the unobviousness of the subject matter of claims 1, 8 to 12 and 19 to 27, we do agree with appellant that the status of the Nilssen reference as being part of the "prior art" as to claims 28 and 29 is at least suspect. In order to avoid an unnecessary waste of time to resolve the issue, we will reverse the outstanding rejection under § 103 using Nilssen and substitute the following new ground of rejection pursuant to 37 CFR § 1.196(b) in its place.

Claims 28 and 29 are rejected under 35 U.S.C. § 103. As evidence of obviousness, we offer Pitel considered with Cox, as discussed above, with the further consideration of Elms.

Elms teaches a versatile DC supply circuit to feed an inverter which in turn feeds a discharge lamp. The clear advantage of using this circuit in its 110v Figure 2 mode is the increased voltage provided vis-à-vis the Pitel DC mode. The artisan would have been led by this expected advantage to further modify the Pitel ballast circuit in accordance with the Elms teachings.

In light of the foregoing, the decision of the examiner is affirmed-in-part.

Any request for reconsideration or modification of this decision by the Board of Patent Appeals and Interferences based

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upon the same record must be filed within one month from the date of the decision (37 CFR § 1.197).

With respect to the new rejection under 37 CFR § 1.196(b), should appellant elect the alternate option under that rule to prosecute further before the Primary Examiner by way of amendment or showing of facts, or both, not previously of record, a shortened statutory period for making such response is hereby set to expire two months from the date of this decision. In the event appellant elects this alternate option, in order to preserve the right to seek review under 35 U.S.C. § 141 or § 145 with respect to the affirmed rejection, the effective date of the affirmance is deferred until conclusion of the prosecution before the examiner unless, as a mere incident to the limited prosecution, the affirmed rejection is overcome.

If the appellant elects prosecution before the examiner and this does not result in allowance of the application, abandonment or a second appeal, this case should be returned to us for final action on the affirmed rejection, including any timely request for reconsideration thereof.

Effective August 20, 1989, 37 CFR § 1.196(b) has been amended to provide that a new ground of rejection pursuant to the rule is not considered final for the purpose of judicial review under 35 U.S.C. § 141 or § 145.

